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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/605,520

06/27/2000

Marc A. Unger

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12/03/2007

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EXAMINER

OLSEN, ALLAN W

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

12/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/605,520

Applicant(s)

UNGER ET AL.

Examiner

Allan Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 109-204, 292 and 293 is/are pending in the application.
- 4a) Of the above claim(s) 110-204 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 109, 292 and 293 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2000 and 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 110-204 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 11, 2002 and January 3, 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 109, 292 and 293 are rejected under 35 U.S.C. 102(a) as being anticipated by US Patent 5,856,174 issued to Lipshutz et al. (hereinafter, Lipshutz).

Lipshutz teaches a method of microfabricating an elastomeric structure, comprising:

microfabricating a first elastomeric layer (106) having a recess formed therein that forms a flow channel (110).

wherein a deflectable membrane (114) is formed integral with the first elastomeric layer;

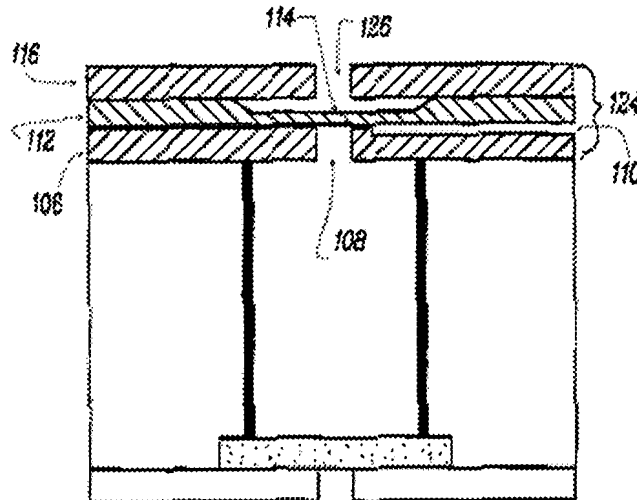
microfabricating a second elastomeric layer (112 or 116) having a recess formed therein, wherein the deflectable membrane is deflected to close the flow channel in response to an actuation force from the recess in the second elastomeric layer;

positioning the second elastomeric layer on "top" of the first elastomeric layer; and,

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bonding a "bottom" surface of the second elastomeric layer onto a "top" surface of the first elastomeric layer.

As depicted below the second elastomeric layer (112) is on top of the first elastomeric layer (106) layer such that a bottom surface of (112) is bonded to the top of (116). However, it should be noted that the figure below is an inverted representation of Lipschutz's figure 2B. The inverted figure of 2B is considered to be equally applicable because the device of Lipshutz can function in any orientation and therefore it does not necessarily have a defined top and bottom.



Regarding claims 292 and 293, Lipshutz teaches producing a structure with a plurality valves such as that depicted in figure 2b (for example, column 29, lines 58-60) and the recess above flexible membrane (114) as depicted above having a long axis parallel to the top/bottom surfaces of the component layers.

Response to Arguments

Applicant's arguments filed September 28, 2007 have been fully considered but they are not persuasive. Applicant argues:

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Lipshutz shows a structure with a flow channel and deflectable membrane formed in different layers. In contrast, Claims 109, 292 and 293 all describe methods that include microfabricating a flow channel and deflectable membrane in a single, integral layer....

The description of Fig. 2B, and the Figure itself, are unambiguous in describing first planar member 106 (in which the fluid channel 110 is formed) and second planar member 112 (in which the deflectable diaphragm valve 114 is formed) as two separate layers that are mated together:

In particular, the second part 124 mated to the polymeric part [102] may comprise a plurality of mated planar members *Lipshutz*, col. 16, ll. 46-48.

Fig 2B shows second part 124 encompassing three separate planar members (i.e., members 106, 112, and 116) that are mated to form the part. Furthermore, as noted above, a recess for the fluid channel 110 is only formed in one of these members (106) and the deflectable diaphragm valve 114 is only formed in a different member (112). Thus, Fig. 2B and the corresponding description in the specification of Lipshutz neither describe nor suggest that fluid channel 110 and deflectable diaphragm valve 114 are formed integral in a single elastomeric layer.

Applicant also remarks on the examiner's transposition of reference characters 106 and 116. In the Office action of March 28, 2007, in all instances the reference characters 106 and 116 were the inadvertently switched. The inadvertent switching of 116 and 106 also occurred in the inverted figure 3 of Lipshutz, which was included in the Office action. As such, the examiner's use of reference characters 106 and 116 in the remarks was consistent with their use in the included figure. In the above rejection and in the above inverted figure 3 of Lipshutz, the reference characters 106 and 116 are used in their original context.

Regarding applicant's position that "Lipshutz neither describe(s) or suggest(s) that fluid channel 110 and deflectable diaphragm valve 114 are formed integral in a

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single elastomeric layer", the examiner reiterates the position set forth in the Final Office action of March 27, 2007.

In response, the examiner notes that applicant's specification is quite clear on the point that an integral member may result from the bonding of one layer to another. See, for example, the following excerpt from page 2, line 24+:

In preferred aspects of the invention, separate elastomeric layers are fabricated on top of micromachined molds such that recesses are formed in each of the various elastomeric layers. By bonding these various elastomeric layers together, the recesses extending along the various elastomeric layers form flow channels and control lines through the resulting monolithic, integral elastomeric structure.

With this perspective, the examiner considers Lipshutz to teach a structure ~~in which~~ wherein deflectable membrane 114 is formed integral with the first elastomeric layer

106.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen", is positioned to the left of the typed name and title.

Allan Olsen
Primary Examiner
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